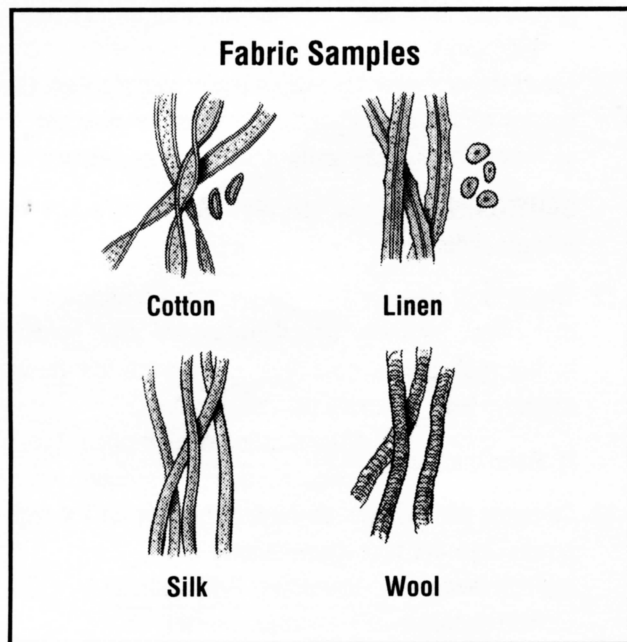


- n) Record your estimate.
  - o) If an object is very small, which field of view would probably give you the best estimate?
- 16 Estimate the diameter of the nucleus and the nucleolus of the cell.
- p) Explain how you arrived at your estimates.
  - q) Record your estimates.

#### Part IV: Using a Microscope for Forensic Investigations

Police departments throughout the world use scientific instruments to help identify criminals. The microscope has played an important investigative role in the conviction or acquittal of crime suspects.

A wealthy heiress was found dead in her swimming pool in the early hours of the morning. The police suspect the gardener of murder. The heiress was wearing a woollen dress with a silk scarf. Fabric samples were taken from under the fingernails of the gardener.



In this investigation you will use the microscope to determine if the gardener is implicated in the murder. Prepare a wet mount of the fabric samples taken from the suspect.

- r) Does your evidence implicate the gardener in the murder of the heiress?

#### Application Questions

- 1 A student switches from the low- to the high-power objective lens of a microscope. The object being viewed disappears, even after careful focusing. Indicate why the object cannot be seen, and suggest a technique that would help eliminate this problem.
- 2 An oil immersion lens is often used to view very tiny objects. If an oil immersion lens has a magnification of 100 $\times$ , calculate its field of view.
- 3 A correcting lens can be placed into the microscope to make objects appear in their normal (non-reversed) position. Suggest reasons why this would be useful.
- 4 Why is it important to measure the size of microscopic objects? ■